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163445
CBI

SITE INSPECTION WORK PLAN

FOR:

Carus Chemical Company ILD005477666

PREPARED BY

PRE-REMEDIAL UNIT
DIVISION OF LAND POLLUTION CONTROL
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
2200 CHURCHILL ROAD
SPRINGFIELD, ILLINOIS 62794

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CONTENTS

Alan Alter
11/13/91
Sampling
61.03

[redacted]

1360 SI Start C.

I. SITE INFORMATION

I. GENERAL

Site Name: Carus Chemical Company ILD# 005477666

Site Location: 1500 Eighth Street LPC# 0998160003

La Salle, Illinois Work plan prepared by:

La Salle County Robert L. Casper

Estimated inspection date: November 20, 1991 Work plan approved by:

Alan Alter

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II. THE ASSIGNMENT (briefly describe the objectives of the inspection and how they are going to be accomplished).

The purpose of a Screening Site Inspection is to document site contamination and identify the potential migration pathways contaminants may be transported. Groundwater and soil/sediment samples will be collected during the SSI to be used to evaluate the impact of contamination.

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III. SITE DESCRIPTION (briefly describe the site, including location, unique geological features, source(s) of contamination, methods of disposal and current status of activities).

Carus Chemical Company, located at 1500 Eighth Street, La Salle, Illinois is an active site involved in the production of permanganate and other inorganic chemicals as well as dihydroxybenzene (hydroquinone) which is used in photographic processing. Drainage from the site flows toward the east. The land east of the area used for manufacturing activities drops sharply toward the Little Vermilion River. Water used at the facility is

obtained from the city of La Salle who derives it from municipal wells. Approximately 1.2 million gallons of water used daily in the manufacturing process is eventually discharged into the Little Vermilion River after it first is monitored for ph and absorbance and then travels through a four acre settlement pond. The water then passes into the Little Vermilion River via an overflow pipe. Approximately 50,000 gallons of sanitary wastewater per day is handled separately and is discharged into the city of La Salle sewer system.

IV. SITE HISTORY (briefly describe the history of the site including previous owners, reported injuries, complaints, govt. action).

The company was founded in 1912 and began operations at the present location in 1915. The site is adjacent to an area that has been in use prior to 1912 and up to the present as a zinc processing facility. The site has visible areas of cinder and slag that was dumped in the past by the zinc processing plant located directly north of the Carus Chemical Company site.

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II. SAFETY CONSIDERATIONS

I. PHYSICAL HAZARDS AT SITE (briefly describe any physical hazards that the inspection team may encounter at the site).

The sampling points area is located within the site boundaries, therefore, traffic is not a concern. However, portions of the site contain brush and irregular terrain. Weather factors, such as cold or thunderstorms, are a possibility with precautions taken to prevent any problems from these factors.

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II. CHEMICAL HAZARDS AT SITE (briefly identify those chemicals that are known or are suspected to be present, include their state and physical characteristics).

Chemicals suspected to be present on site are inorganic chemicals associated with the manufacture of manganese, cerium and cesium compounds in addition to organic substances involved in the manufacture of hydroquinone. These compounds may be found in soil/sediment or in groundwater samples.

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III. DERMAL AND RESPIRATORY PROTECTION (identify the level of personal protection that will be used, including anticipated modifications).

Level D protection will be used at all times, with continuous air monitoring during the sample collection. If an increase occurs, the following will be implemented: 0-5 units over background Level C

5-50 units over background Level B

50-500 units over background Level A

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IV. EMERGENCY INFORMATION

Nearest Hospital: Ill. Valley Community Hospital (Phone) 815-223-3300

Hospital Location: 925 West Street

Peru, Illinois

Ambulance Service: La Salle Ambulance Service (Phone) 815-523-9111

Fire Service: La Salle Fire Department (Phone) 815-223-2121

Police: La Salle Police Department (Phone) 815-223-2131

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SDMS US EPA REGION V

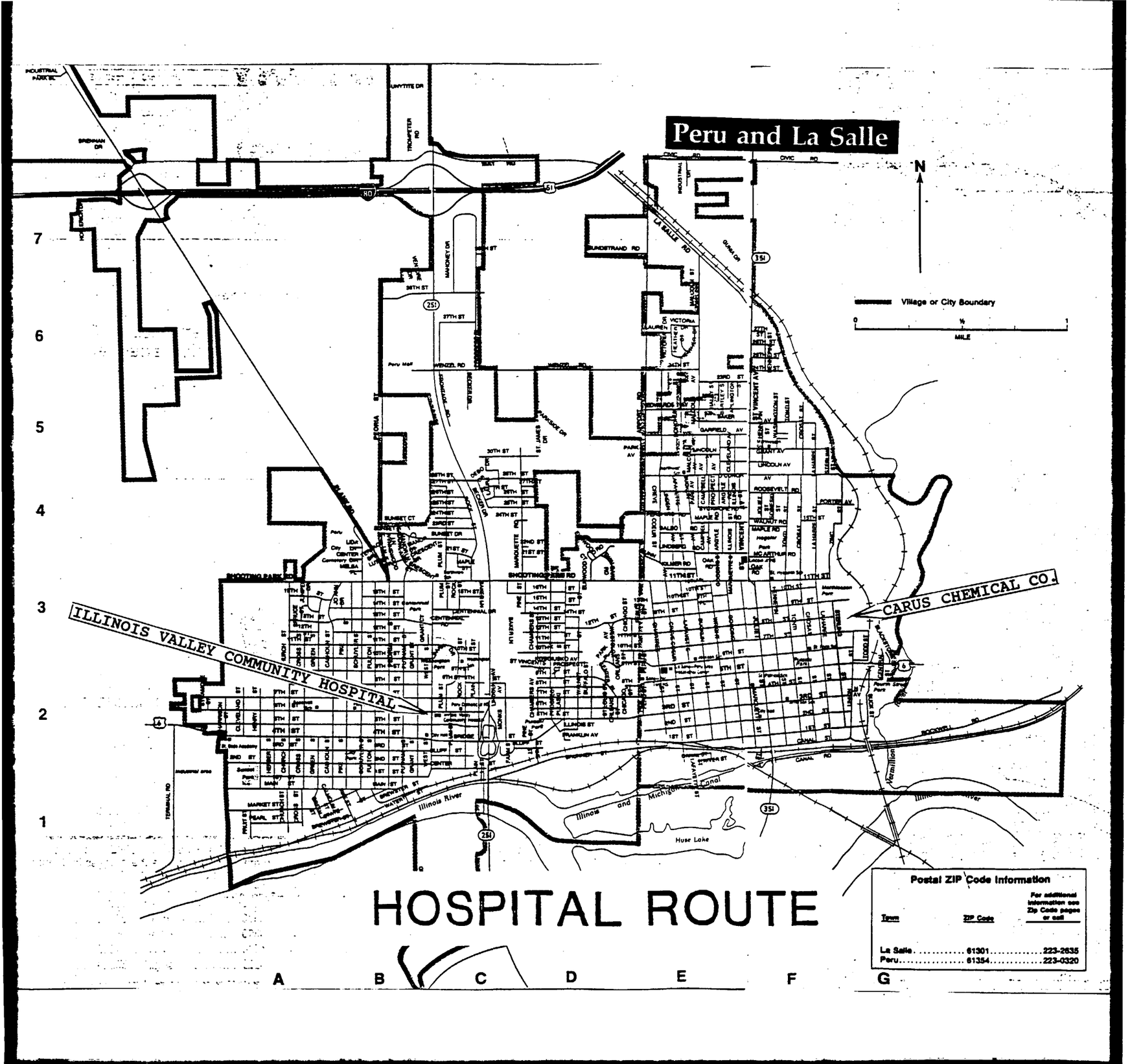
COLOR-RESOLUTION - 2

IMAGERY INSERT FORM

The following page(s) of this document include color or resolution variations. Unless otherwise noted, these pages are available in monochrome. The original document is available for viewing at the Superfund Records Center.

SITE NAME	MATTHIESEN & HEGELER (CARUS CHEMICAL)
DOC ID #	163445
DESCRIPTION OF ITEM(S)	MAPS
PRP	
DOCUMENT VARIATION	_X_ COLOR OR _X_ RESOLUTION
DATE OF ITEM(S)	UNDATED
NO. OF ITEMS	2
PHASE	SAS
OPERABLE UNITS	
PHASE (AR DOCUMENTS ONLY)	___ Remedial ___ Removal ___ Deletion Docket ___Original ___ Update # ___ Volume ___ of ___
COMMENT(S)	
HOSPITAL ROUTE ; SAMPLE LOCATION MAPS	

Peru and La Salle



HOSPITAL ROUTE

Postal ZIP Code Information

Town	ZIP Code	For additional information see Zip Code pages or call
La Salle	61301	223-2635
Peru	61354	223-0320

III. FIELD ACTIVITIES

I. TEAM ASSIGNMENTS

NAME	Responsibility
....Robert Casper	Project Manager
Greg Dunn	Safety Officer/Sampler
Kim Nika	Sampler
Tim Murphy	Sampler

II. FIELD WORK PROPOSED
(check all that apply)

	Activity	Procedures
X	Ambient Air Sampling (OVA,HNU,etc.)	IEPA Methods Manual pp.19-23
X	Groundwater Sampling	IEPA Methods Manual pp.1-5
___	Surface Water Sampling	IEPA Methods Manual pp.6-10
X	Soil/Sediment Sampling	IEPA Methods Manual pp.13-18
___	Tap Water Sampling	IEPA Methods Manual pp.11-12
___	Slope Determinations	IEPA Methods Manual pp.24-25
X	Water Level Measurements	IEPA Methods Manual p.31
X	Perimeter Survey	IEPA Methods Manual p.33
X	Site Inspection	IEPA Methods Manual pp.34-39
___	Soil Borings/Well Installation	IEPA Methods Manual pp.26-30
X	Public Interviews	IEPA Methods Manual p.40
___	Groundwater Flow Determination	IEPA Methods Manual p.32
X	Decontamination Procedures	IEPA Methods Manual pp.41-56
___	Others:	_____

IV. SAMPLING

I. PROCEDURES (briefly describe the procedures the inspection team will employ in their collection of environmental samples).

All samples will be collected in accordance with the Illinois Environmental Protection Agency's Site Inspection QAPP. Monitor wells samples will be collected with teflon bailers and the soil/ sediment samples will be collected with stainless steel spoons.

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II. LOCATION OF SAMPLES (identify the number of samples, their type and their location. The attached map should identify these locations).

Sample #	Type	Location
G101, G103, G106	Groundwater	see attached map
X101-X105	Soil/Sediment	see attached map
X201-X207	Sediment	see attached map
G109	Groundwater	see attached map

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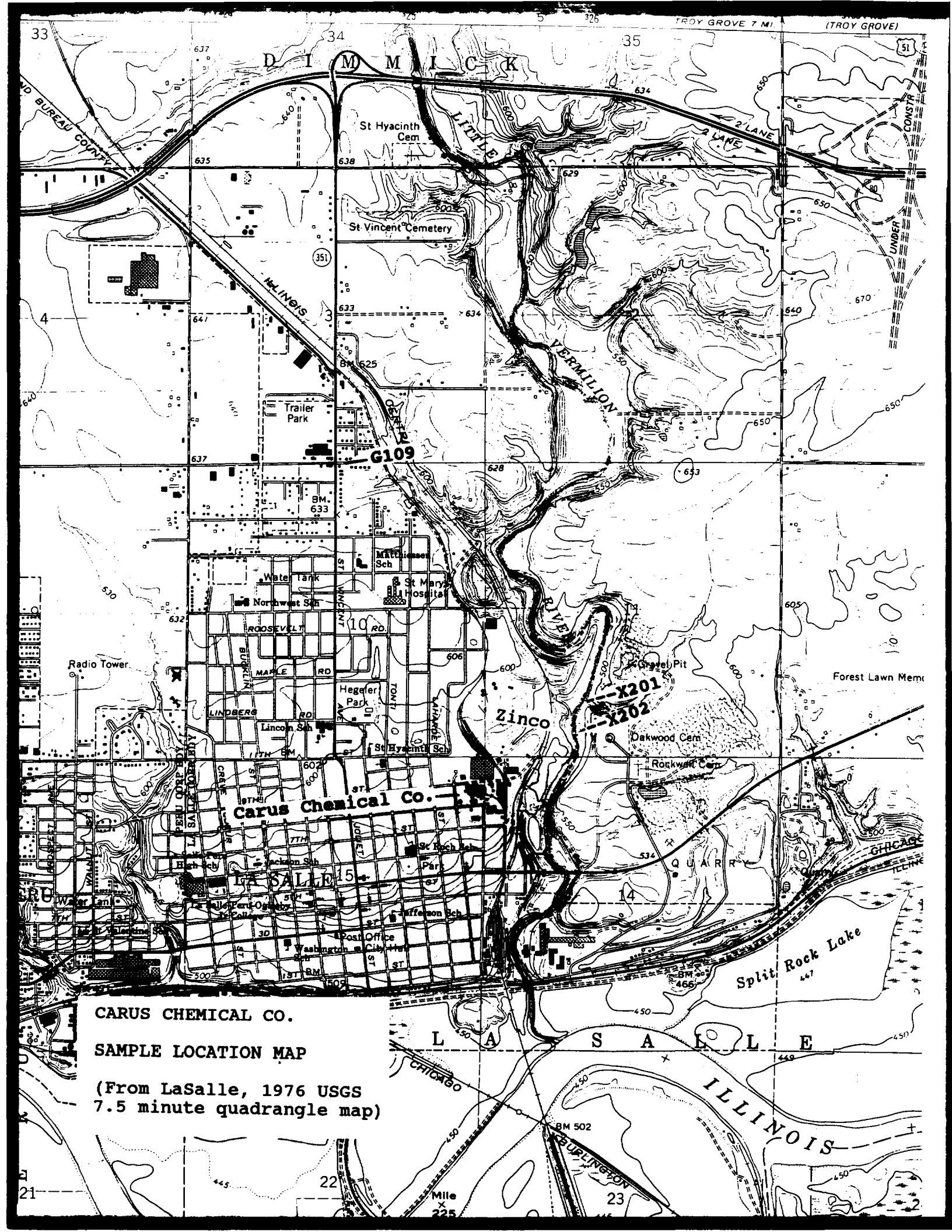
III. ANALYTICAL SERVICES (identify the laboratory that will perform the analysis of the samples taken at the site, include requested analysis)

The target compound list will be run on all samples. All organic and inorganic samples will be analyzed by ARDL in Mount Vernon, IL.

SAMPLE LOCATION MAP

CARUS CHEMICAL CO.

Scale: 1 inch equals 200 feet



CARUS CHEMICAL CO.

SAMPLE LOCATION MAP

(From LaSalle, 1976 USGS 7.5 minute quadrangle map)

ATTACHMENT I

RECORDS AND DOCUMENTATION (Check the records or documents that will be generated during this project)

- [X] Work Plan
- [X] Safety Plan
- [X] Sampling Plan
- [X] Equipment Checklist
- [X] Log Book
- [X] Chain of Custody Records
- [X] Sample Analysis Records
- [X] Photographs
- [ ] Drilling Logs
- [X] Correspondence
- [X] Personal Interview Tapes or Transcripts
- [X] Maps
- [X] Instrument Calibration Records
- [ ] Procurement Documents
- [X] Site Inspection Form (2070-13)
- [X] HRS Scoring Package
- [ ] Other (specify)
- [ ] Other (specify)

PA Scoresheets

Site Name: CARUS CHEMICAL CO.
Date: 6-25-91

GENERAL INFORMATION (continued)

Source Descriptions:

CARUS CHEMICAL CO. PRODUCES WASTE WHICH IS A BY-PRODUCT OF ITS MANUFACTURING PROCESS WHICH INVOLVES THE USE OF ORES CONTAINING MANGANESE, CESIUM AND CERIUM. THE UNUSEABLE PORTION OF THE ORE IS PLACED IN LARGE ROLL-BOXES AND IS HAULED TO A PERMITTED LANDFILL ON A DAILY BASIS. PROCESS WATER ENTERS A 4-ACRE SETTLING AND TREATMENT POND AND THEN ENTERS THE LITTLE VERMILION RIVER.

Waste Characteristics (WC) Calculations:
See PA Table 1, page 5)

MAXIMUM NUMBER OF CUBIC YARDS OF WASTE ON-SITE:

$50\ yds^3$

PILE $\leq 250\ yds^3$ = WC score of 18

SURFACE IMPOUNDMENT (SOUTH SETTLING & TREATMENT POND):

4 ACRES = WC SCORE OF 100.

WC = 100

Site Name: CARUS CHEMICAL CO
Date: 6-25-91

PA TABLE 1: WASTE CHARACTERISTICS (WC) SCORES

PA Table 1a: WC Scores for Single Source Sites and Formulas for Multiple Source Sites

TIER	SOURCE TYPE	SINGLE SOURCE SITES (assigned WC scores)			MULTIPLE SOURCE SITES
		WC = 18	*WC = 32*	*WC = 100*	Formula for Assigning Source WQ Values
CONSTITUENT	N/A	≤100 lbs	>100 to 10,000 lbs	>10,000 lbs	*lbs ÷ 1*
WASTESTREAM	N/A	≤500,000 lbs	>500,000 to 50 million lbs	>50 million lbs	*lbs ÷ 5,000*
VOLUME	Landfill	≤6.75 million ft³ ≤250,000 yd³	>6.75 million ft³ to 675 million ft³ >250,000 to 25 million yd³	>675 million ft³ >25 million yd³	*ft³ ÷ 67,500* *yd³ ÷ 2,500*
	Surface impoundment	≤6,750 ft³ ≤250 yd³	>6,750 ft³ to 675,000 ft³ >250 to 25,000 yd³	>675,000 ft³ >25,000 yd³	*ft³ ÷ 67.5* *yd³ ÷ 2.5*
	Drums	≤1,000 drums	>1,000 to 100,000 drums	>100,000 drums	*drums ÷ 10*
	Tanks and non-drum containers	≤50,000 gallons	>50,000 to 5 million gallons	>5 million gallons	*gallons ÷ 500*
	Contaminated soil	≤6.75 million ft³ ≤250,000 yd³	>6.75 million ft³ to 675 million ft³ >250,000 to 25 million yd³	>675 million ft³ >25 million yd³	*ft³ ÷ 67,500* *yd³ ÷ 2,500*
	Pile	≤6,750 ft³ ≤250 yd³	>6,750 ft³ to 675,000 ft³ >250 to 25,000 yd³	>675,000 ft³ >25,000 yd³	*ft³ ÷ 67.5* *yd³ ÷ 2.5*
AREA	Landfill	≤340,000 ft² ≤7.8 acres	>340,000 to 34 million ft² >7.8 to 780 acres	>34 million ft² >780 acres	*ft² ÷ 3,400* *acres ÷ 0.078*
	Surface impoundment	≤1,300 ft² ≤0.029 acres	>1,300 to 130,000 ft² >0.029 to 2.9 acres	>130,000 ft² >2.9 acres	*ft² ÷ 13* *acres ÷ 0.00029*
	Contaminated soil	≤3.4 million ft² ≤78 acres	>3.4 million to 340 million ft² >78 to 7,800 acres	>340 million ft² >7,800 acres	*ft² ÷ 34,000* *acres ÷ 0.78*
	Pile*	≤1,300 ft² ≤0.029 acres	>1,300 to 130,000 ft² >0.029 to 2.9 acres	>130,000 ft² >2.9 acres	*ft² ÷ 13* *acres ÷ 0.00029*
	Land treatment	≤27,000 ft² ≤0.62 acres	>27,000 to 2.7 million ft² >0.62 to 62 acres	>2.7 million ft² >62 acres	*ft² ÷ 270* *acres ÷ 0.0062*

1 ton = 2,000 lbs = 1 yd³ = 4 drums = 200 gallons

* Use area of land surface under pile, not surface area of pile.

PA Table 1b: WC Scores for Multiple Source Sites

WQ Total	*WC Score*
>0 to 100	18
>100 to 10,000	32
>10,000	100

Site Name: CARUS CHEMICAL CO.
Date: 6-25-91

GROUND WATER PATHWAY
GROUND WATER USE DESCRIPTION

Describe Ground Water Use Within 4-miles of the Site:

Provide generalized stratigraphy; information on aquifers, municipal, and or private wells)

CARUS CHEMICAL CO. IS LOCATED IN AN AREA OF WISCONSIN GLACIAL TILL. BEDROCK CONSISTS OF HIGHLY FRACTURED SILURIAN AND ORDOVICIAN-AGED DOLOMITES AND THE ST. PETER SANDSTONE.

THE NEAREST MUNICIPAL WELL IS APPROXIMATELY .7 MILE FROM THE SITE AND IS PART OF THE GROUP OF FOUR WELLS WHICH THE CITY OF LaSalle USES FOR ITS TOTAL WATER SUPPLY. THESE WELLS ARE IN THE SAND AND GRAVEL AQUIFER AT DEPTHS RANGING FROM 60-70 FEET DEEP. THE CITY OF PERU, WHICH IS LOCATED DIRECTLY WEST OF LaSalle, DRAWS ITS WATER FROM THE ST. PETERS SANDSTONE AT DEPTHS OF 2,591 FT. TO 2764 FT.

THE CLOSEST KNOW PRIVATE WELL IS LOCATED APPROXIMATELY 1½ MILES EAST-NORTHEAST OF THE SITE AND DRAWS WATER FROM A CRACKED LIMESTONE FORMATION AND IS 160 FEET DEEP.

THE TOWN OF OGLESBY HAS 2 MUNICIPAL WELLS WHICH ARE LOCATED APPROXIMATELY 3¼ MILES SE OF CARUS CHEMICAL.

Show calculations of ground water drinking water populations:

PRIVATE WELL POPULATION:

¼	½	1	2	3	4
0	0	21	132	342	334

CITY OF LaSalle POPULATION:

¼	½	1	2	3	4
0	0	9,446	0	0	0

CITY OF PERU POPULATION

¼	½	1	2	3	4
0	0	0	0	10,866	0

CITY OF OGLESBY POPULATION (PIETY HOLL-JONESVILLE)

¼	½	1	2	3	4
0	0	0	0	0	4373

CITY OF NORTH UTICA POPULATION

¼	½	1	2	3	4
¼/0	½/0	1/0	2/0	3/0	533

TOTAL POPULATION

¼ - 0
½ - 0
1 - 9467
2 - 132
3 - 11208
4 - 5242

GROUND WATER PATHWAY CRITERIA LIST

Site Name: CARUS CHEMICAL C
Date: 6-25-91

This chart provides guidelines to assist you in hypothesizing the presence of a suspected release and identifying primary targets. It is expected that not all of this information will be available during the PA. Also, these criteria are not all-inclusive; list any other criteria you use to hypothesize a suspected release or to identify primary targets. This chart will record your professional judgment in evaluating these factors.

The "Suspected Release" section of the chart guides you through evaluation of some site, source, and pathway conditions to help hypothesize whether a release from the site is likely. If a release is suspected, use the "Primary Targets" section to guide you through evaluation of some conditions that will help identify targets likely to be exposed to hazardous substances. You may use this section of the chart more than once, depending on the number of targets you feel may be considered "primary." In the "Primary Targets" section on this sheet, record the responses for the well that you feel has the highest probability of being exposed to hazardous substances.

Check the boxes to indicate a "yes", "no", or "unknown" answer to each question. If you check the "Suspected Release" box as "yes", make sure that you assign a Likelihood of Release value of 550 for the pathway.

GROUND WATER PATHWAY

SUSPECTED RELEASE

Yes	No	Unknown	
☐	☒	☐	Are sources poorly contained?
☐	☒	☐	Is the source a type likely to contribute to ground water contamination (e.g., wet lagoon)?
☐	☒	☐	Is waste quantity particularly large?
☐	☒	☐	Is precipitation heavy and infiltration rate high?
☐	☒	☐	Is the site located in an area of karst terrain?
☐	☒	☐	Is the subsurface highly permeable or conductive?
☒	☐	☐	Is drinking water drawn from a shallow aquifer?
☐	☒	☐	Are suspected contaminants highly mobile in ground water?
☐	☒	☐	Does any circumstantial evidence of ground water or drinking water contamination exist?
☐	☐		Other criteria? NONE
☐	☒		**SUSPECTED RELEASE?**

PRIMARY TARGETS

Yes	No	Unknown	
☐	☐	☐	Is any drinking-water well nearby?
☐	☐	☐	Is any nearby drinking-water well closed?
☐	☐	☐	Has foul-tasting or foul-smelling water been reported by any nearby drinking-water users?
☐	☐	☐	Do any nearby wells have a large drawdown or high production rate?
☐	☐	☐	Are drinking-water wells located between the site and other wells that are suspected to be exposed to hazardous substances?
☐	☐	☐	Does any circumstantial evidence of ground water or drinking water contamination exist?
☐	☐	☐	Does any drinking-water well warrant sampling?
☐	☐		Other criteria? _____
☐	☐		**PRIMARY TARGET(S) IDENTIFIED?**

Summarize the rationale for suspected release (attach an additional page if necessary):

NO RELEASE IS SUSPECTED TO HAVE OCCURRED TO GROUNDWATER

Summarize the rationale for Primary Targets (attach an additional page if necessary):

IEPA FILES; CONVERSATIONS WITH LOCAL WATER OPERATORS; PWS MICROFICHE FILES; 1990 CENSUS DATA.

Site Name: CARUS CHEMICAL CO.
Date: 6-25-91

GROUND WATER PATHWAY SCORESHEET

Pathway Characteristics		
Do you suspect a release (see Ground Water Pathway Criteria List, page 7)?	Yes ___	No X
Is the site located in karst terrain?	Yes ___	No X
Depth to aquifer:	60 ft	
Distance to the nearest drinking-water well:	4000 ft	

	A Suspected Release	B No Suspected Release	References
LIKELIHOOD OF RELEASE			
1. SUSPECTED RELEASE: If you suspect a release to ground water (see page 7), assign a score of 550, and use only column A for this pathway.			1
2. NO SUSPECTED RELEASE: If you do not suspect a release to ground water, and the site is in karst terrain or the depth to aquifer is 70 feet or less, assign a score of 500; otherwise, assign a score of 340. Use only column B for this pathway.		500	2
LR =		500	
TARGETS			
3. PRIMARY TARGET POPULATION: Determine the number of people served by drinking water from wells that you suspect have been exposed to hazardous substances from the site (see Ground Water Pathway Criteria List, page 7). ___ people x 10 =			3
4. SECONDARY TARGET POPULATION: Determine the number of people served by drinking water from wells that you do NOT suspect have been exposed to hazardous substances from the site, and assign the total population score from PA Table 2. Are any wells part of a blended system? Yes ___ No X. If yes, attach a page to show apportionment calculations.		424	4
5. NEAREST WELL: If you have identified any Primary Targets for ground water, assign a score of 50; otherwise, assign the highest Nearest Well score from PA Table 2. If no drinking-water wells exist within 4 miles, assign a score of zero.		9	5
6. WELLHEAD PROTECTION AREA (WHPA): Assign a score of 20 if any portion of a designated WHPA is within ¼ mile of the site; assign 5 if from ¼ to 4 miles.		0	6
7. RESOURCES: A score of 5 is assigned.	5	5	
T =		438	
WASTE CHARACTERISTICS			
8. A. If you have identified any Primary Targets for ground water, assign the waste characteristics score calculated on page 4, or a score of 32, whichever is GREATER; do not evaluate part B of this factor.			
B. If you have NOT identified any Primary Targets for ground water, assign the waste characteristics score calculated on page 4.		100	
WC =		100	

GROUND WATER PATHWAY SCORE: $\dfrac{LR \times T \times WC}{82{,}500}$ = 100

Site Name: CARUS CHEMICAL CO
Date: 6-25-91

PA TABLE 2: VALUES FOR SECONDARY GROUND WATER TARGET POPULATIONS

PA Table 2a: Non-Karst Aquifers

Distance from Site	Population	Nearest Well (choose highest)	Population Served by Wells Within Distance Category: 1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	Population Value
0 to ¼ mile	0	20	1	2	5	16	52	163	521	1,633	5,214	16,325	0
> ¼ to ½ mile	0	18	1	1	3	10	32	101	323	1,012	3,233	10,121	0
> ½ to 1 mile	9467	(9)	1	1	2	5	17	52	(167)	522	1,668	5,224	167
> 1 to 2 miles	132	5	1	1	1	(3)	9	29	94	294	939	2,938	3
> 2 to 3 miles	11208	3	1	1	1	2	7	21	68	(212)	678	2,122	212
> 3 to 4 miles	5240	2	1	1	1	1	4	13	(42)	131	417	1,306	42
Nearest Well =												Score =	424

PA Table 2b: Karst Aquifers

Distance from Site	Population	Nearest Well (use 20 for karst)	Population Served by Wells Within Distance Category: 1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	Population Value
0 to ¼ mile		20	1	2	5	16	52	163	521	1,633	5,214	16,325	
> ¼ to ½ mile		20	1	1	3	10	32	101	323	1,012	3,233	10,121	
> ½ to 1 mile		20	1	1	3	8	26	82	261	816	2,607	8,162	
> 1 to 2 miles		20	1	1	3	8	26	82	261	816	2,607	8,162	
> 2 to 3 miles		20	1	1	3	8	26	82	261	816	2,607	8,162	
> 3 to 4 miles		20	1	1	3	8	26	82	261	816	2,607	8,162	
Nearest Well =												Score =	

SURFACE WATER PATHWAY CRITERIA LIST

Site Name: CARUS CHEMICAL CO.
Date: 6-25-91

This chart provides guidelines to assist you in hypothesizing the presence of a suspected release and identifying primary targets. It is expected that not all of this information will be available during the PA. Also, these criteria are not all-inclusive: list any other criteria you use to hypothesize a suspected release or to identify primary targets. This chart will record your professional judgment in evaluating these factors.

The "Suspected Release" section of the chart guides you through evaluation of some site, source, and pathway conditions to help hypothesize whether a release from the site is likely. If a release is suspected, use the "Primary Targets" section to guide you through evaluation of some conditions that will help identify targets likely to be exposed to hazardous substances. You may use this section of the chart more than once, depending on the number of targets you feel may be considered "primary." In the "Primary Targets" section on this sheet, record the responses for the target that you feel has the highest probability of being exposed to hazardous substances.

Check the boxes to indicate a "yes", "no", or "unknown" answer to each question. If you check the "Suspected Release" box as "yes", make sure that you assign a Likelihood of Release value of 550 for the pathway.

SURFACE WATER PATHWAY

SUSPECTED RELEASE

Yes	No	Unknown	
X	☐	☐	Is surface water nearby?
☐	X	☐	Is waste quantity particularly large?
☐	X	☐	Is the drainage area large?
☐	X	☐	Is precipitation heavy or infiltration rate low?
☐	X	☐	Are sources poorly contained or prone to runoff or flooding?
X	☐	☐	Is a runoff route well defined (e.g., ditch or channel leading to surface water)?
☐	X	☐	Is vegetation stressed along the probable runoff path?
☐	X	☐	Are suspected contaminants highly persistent in surface water?
☐	X	☐	Are sediments/water unnaturally discolored?
☐	X	☐	Is wildlife unnaturally absent?
☐	X	☐	Has deposition of waste into surface water been observed?
☐	X	☐	Is ground water discharge to surface water likely?
☐	X	☐	Is there any circumstantial evidence of surface water contamination?
☐	☐		Other criteria? _____
☐	X		**SUSPECTED RELEASE?**

PRIMARY TARGETS

Yes	No	Unknown	
☐	☐	☐	Is any target nearby? If yes:
			☐ Drinking-water intake
			☐ Fishery
			☐ Sensitive environment
☐	☐	☐	Has an intake, fishery, or recreational area been closed?
☐	☐	☐	Is there any circumstantial evidence of surface water contamination at or downstream of a target?
☐	☐	☐	Does any target warrant sampling? If yes:
			☐ Drinking-water intake
			☐ Fishery
			☐ Sensitive environment
☐	☐		Other criteria? _____
☐	☐		**PRIMARY INTAKE(S) IDENTIFIED?**
☐	☐		**PRIMARY FISHERY IDENTIFIED?**
☐	☐		**PRIMARY SENSITIVE ENVIRONMENT(S) IDENTIFIED?**

Summarize the rationale for suspected release (attach an additional page if necessary):

NO RELEASE IS SUSPECTED

Summarize the rationale for Primary Targets (attach an additional page if necessary):

ILL. FISHING GUIDE - ILL. DOC - DIVISION OF FISHERIES; PWS MICROFICHE FILES; WETLAND INVENTORY MAPS; IEPA LAND AND WATER DIVISION FILES; ILL. DEPT. ON CONSERVATION — ID OF ENVIRONMENTAL SENSITIVE AREAS

Site Name: CARUS CHEMICAL Co
Date: 6-25-91

SURFACE WATER PATHWAY
LIKELIHOOD OF RELEASE AND DRINKING WATER THREAT SCORESHEET

Pathway Characteristics		
Do you suspect a release (see Surface Water Pathway Criteria List, page 11)?	Yes ___ No X	
Distance to surface water:		700 ft
Flood Frequency:		500 yrs
What is the downstream distance to the nearest drinking-water intake?	> 15 miles	
nearest fishery? 0 miles	nearest sensitive environment? 0.2 miles	

	A Suspected Release	B No Suspected Release	References
LIKELIHOOD OF RELEASE			
1. SUSPECTED RELEASE: If you suspect a release to surface water (see page 11), assign a score of 550, and use only column A for this pathway.	[illegible]	[illegible]	7
2. NO SUSPECTED RELEASE: If you do not suspect a release to surface water, and the distance to surface water is 2,500 feet or less, assign a score of 500; otherwise, assign a score from the table below. Use only column B for this pathway.	[illegible]	500	8
LR =	[illegible]	500	

Floodplain	Score
Site in annual or 10-yr floodplain	500
Site in 100-yr floodplain	400
Site in 500-yr floodplain	300
Site outside 500-yr floodplain	100

DRINKING WATER THREAT TARGETS

3. Determine the water body types, flows (if applicable), and number of people served by all drinking-water intakes within the 15-mile target distance limit. If there are no drinking-water intakes within the target distance limit, assign a total Targets score of 5 at the bottom of this page (Resources only) and proceed to page 14.

Intake Name	Water Body Type	Flow	People Served
NONE		___ cfs	
		___ cfs	
		___ cfs	

9

4. PRIMARY TARGET POPULATION: If you suspect any drinking-water intake listed above has been exposed to hazardous substances from the site (see Surface Water Pathway Criteria List, page 11), list the intake name(s) and calculate the factor score based on the number of people served.

___, ___

___ people x 10 = 10

5. SECONDARY TARGET POPULATION: Determine the Secondary Target Population score from PA Table 3 based on the populations using drinking-water from intakes that you do NOT suspect have been exposed to hazardous substances from the site.

Are any intakes part of a blended system? Yes ___ No ___
If yes, attach a page to show apportionment calculations.

0 — 11

6. NEAREST INTAKE: If you have identified any Primary Targets for the drinking water threat (Factor 4), assign a score of 50; otherwise, assign the Nearest Intake score from PA Table 3. If no drinking-water intake exists within the 15-mile target distance limit, assign a score of zero.

0 — 12

7. RESOURCES: A score of 5 is assigned.

5 | 5

T = 5

Site Name: CARUS CHEMICAL CO
Date: 6-25-91

PA TABLE 3: VALUES FOR SECONDARY SURFACE WATER TARGET POPULATIONS

Surface Water Body Flow Characteristics (see PA Table 4)	Population	Nearest Intake (choose highest)	Population Served by Intakes Within Flow Category: 1 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,001 to 3,000,000	Population Value
< 10 cfs	0	20	2	6	16	52	163	521	1,633	5,214	16,325	52,136	163,246	0
10 to 100 cfs	0	2	1	1	2	5	16	52	163	521	1,633	5,214	16,325	0
> 100 to 1,000 cfs	0	1	0	0	1	1	2	5	16	52	163	521	1,633	0
> 1,000 to 10,000 cfs	0	0	0	0	0	0	1	1	2	5	16	52	163	0
> 10,000 cfs or Great Lakes	0	0	0	0	0	0	0	0	1	1	2	5	16	0
3 mile Mixing Zone	0	10	1	3	8	26	82	261	816	2,607	8,162	26,068	81,663	0
Nearest Intake =		0											Score =	0

PA TABLE 4: SURFACE WATER TYPE / FLOW CHARACTERISTICS WITH DILUTION WEIGHTS FOR SECONDARY SURFACE WATER SENSITIVE ENVIRONMENTS

Type of Surface Water Body: Water Body Type	OR	Flow Characteristics	Dilution Weight
minimal stream		flow less than 10 cfs	1
small to moderate stream		flow 10 to 100 cfs	0.1
moderate to large stream		flow greater than 100 to 1,000 cfs	N/A
large stream to river		flow greater than 1,000 to 10,000 cfs	N/A
large river		flow greater than 10,000 cfs	N/A
3-mile mixing zone of quiet flowing streams or rivers		flow 10 cfs or greater	N/A
coastal tidal water (harbors, sounds, bays, etc.), ocean, or Great Lakes		N/A	N/A

Site Name: CARUS CHEMICAL CO.
Date: 6-25-91

SURFACE WATER PATHWAY (continued)
HUMAN FOOD CHAIN THREAT SCORESHEET

LIKELIHOOD OF RELEASE		A Suspected Release	B No Suspected Release	References
Enter the Surface Water Likelihood of Release score from page 12.	LR =		500	

HUMAN FOOD CHAIN THREAT TARGETS

8. Determine the water body types and flows (if applicable) for all fisheries within the 15-mile target distance limit. If there are no fisheries within the target distance limit, assign a Targets score of 0 at the bottom of this page and proceed to page 15.

Fishery Name	Water Body Type	Flow
LITTLE VERMILLION RIVER	STREAM	10-100 cfs
ILLINOIS RIVER	RIVER	2500 cfs
		cfs
		cfs
		cfs

13

9. PRIMARY FISHERIES: If you suspect any fishery listed above has been exposed to hazardous substances from the site (see Surface Water Criteria List, page 11), assign a score of 300 and do not evaluate Factor 10. List the Primary Fisheries:

_____, _____

_____, _____.

14

10. SECONDARY FISHERIES: If you have not identified any Primary Fisheries, assign a Secondary Fisheries score from the table below using the LOWEST flow at any fishery within the 15-mile target distance limit.

Lowest Flow	Secondary Fisheries Score
< 10 cfs	210
10 to 100 cfs	30
> 100 cfs, coastal tidal waters, oceans, or Great Lakes	12

30

15

T =			30

Site Name:
Date:

SURFACE WATER PATHWAY (continued)
ENVIRONMENTAL THREAT SCORESHEET

LIKELIHOOD OF RELEASE		A Suspected Release	B No Suspected Release	References
Enter the Surface Water Likelihood of Release score from page 12.	LR =		500	

ENVIRONMENTAL THREAT TARGETS

11. Determine the water body types and flows (if applicable) for all surface water sensitive environments within the 15-mile target distance limit (see PA Tables 4 and 5). If there are no sensitive environments within the 15-mile target distance limit, assign a Targets score of 0 at the bottom of this page, and proceed to page 17.

Environment Name	Water Body Type	Flow
LITTLE VERMILLION RIVER	STREAM	10-100 cfs
ILLINOIS RIVER	RIVER	2500 cfs
		cfs
		cfs
		cfs

16

12. PRIMARY SENSITIVE ENVIRONMENTS: If you suspect any sensitive environment listed above has been exposed to hazardous substances from the site (see Surface Water Criteria List, page 11), assign a score of 300 and do not evaluate Factor 13. List the Primary Sensitive Environments:

_____, _____,
_____, _____.

17

13. SECONDARY SENSITIVE ENVIRONMENTS:

A. For Secondary Sensitive Environments on surface water bodies with flows of 100 cfs or less, assign scores as follows, and do not evaluate part B of this factor:

Flow		Dilution Weight (PA Table 4)		Environment Type and Value (PA Tables 5 and 6)	Total
10-100	cfs	0.1	x	WETLANDS (¼ mi) 25 =	2.5
2500	cfs	N/A	x	WETLANDS (1-2 mi) 350 =	0
2500	cfs	N/A	x	STATE WILDLIFE MGT (25) =	0
	cfs		x	=	
	cfs		x	=	0

Sum = 2.5

B. If NO Secondary Sensitive Environments are located on surface water bodies with flows of 100 cfs or less, assign a score of 10.

0

18

T = 2.5

Site Name: CARUS CHEMICAL
Date: 6-25-91

PA TABLE 5: SURFACE WATER AND AIR SENSITIVE ENVIRONMENTS VALUES

Sensitive Environment	Assigned Value
Critical habitat for Federally designated endangered or threatened species	100
Marine Sanctuary	
National Park	
Designated Federal Wilderness Area	
Ecologically important areas identified under the Coastal Zone Wilderness Act	
Sensitive Areas identified under the National Estuary Program or Near Coastal Water Program of the Clean Water Act	
Critical Areas identified under the Clean Lakes Program of the Clean Water Act (subareas in lakes or entire small lakes)	
National Monument	
National Seashore Recreation Area	
National Lakeshore Recreation Area	
Habitat known to be used by Federally designated or proposed endangered or threatened species	75
National Preserve	
National or State Wildlife Refuge	
Unit of Coastal Barrier Resources System	
Federal land designated for the protection of natural ecosystems	
Administratively Proposed Federal Wilderness Area	
Spawning areas critical for the maintenance of fish/shellfish species within a river system, bay or estuary	
Migratory pathways and feeding areas critical for the maintenance of anadromous fish species in a river system	
Terrestrial areas utilized by large or dense aggregations of vertebrate animals (semi-aquatic foragers) for breeding	
National river reach designated as recreational	
Habitat known to be used by State designated endangered or threatened species	50
Habitat known to be used by a species under review as to its Federal endangered or threatened status	
Coastal Barrier (partially developed)	
Federally designated Scenic or Wild River	
State land designated for wildlife or game management 13 MI DOWNSTREAM	25
State designated Scenic or Wild River	
State designated Natural Area	
Particular areas, relatively small in size, important to maintenance of unique biotic communities	
State designated areas for the protection/maintenance of aquatic life under the Clean Water Act	5
Wetlands	See PA Table 6 (Surface Water Pathway) or PA Table 9 (Air Pathway)

PA TABLE 6: SURFACE WATER WETLANDS FRONTAGE VALUES

Total Length of Wetlands	Assigned Value
Less than 0.1 mile	0
0.1 to 1 mile	25
Greater than 1 to 2 miles	50
Greater than 2 to 3 miles	75
Greater than 3 to 4 miles	100
Greater than 4 to 8 miles	150
Greater than 8 to 12 miles	250
Greater than 12 to 16 miles	350
Greater than 16 to 20 miles	450
Greater than 20 miles	500

Site Name: CARUS CHEMICAL Co
Date: 6-25-91

SURFACE WATER PATHWAY (concluded)
WASTE CHARACTERISTICS, THREAT, AND PATHWAY SCORE SUMMARY

WASTE CHARACTERISTICS

	A *Suspected Release*	B *No Suspected Release*
14. A. If you have identified ANY Primary Targets for surface water (pages 12, 14, or 15), assign the waste characteristics score calculated on page 4, or a score of 32, whichever is GREATER; do not evaluate part B of this factor.		
B. If you have NOT identified any Primary Targets for surface water, assign the waste characteristics score calculated on page 4.		
WC =		100

SURFACE WATER PATHWAY THREAT SCORES

Threat	*Likelihood of Release (LR) Score (from page 12)*	*Targets (T) Score*	*Pathway Waste Characteristics (WC) Score (determined above)*	*Threat Score LR x T x WC / 82,500*
Drinking Water	500	5	100	3
Human Food Chain	500	30	100	18
Environmental	500	2.5	100	2 (1.515)

SURFACE WATER PATHWAY SCORE
(Drinking Water Threat + Human Food Chain Threat + Environmental Threat)

23
(5.333)

SOIL EXPOSURE PATHWAY CRITERIA LIST

Site Name: CARUS CHEMICAL CO
Date: 6-25-91

This chart provides guidelines to assist you in hypothesizing the presence of a resident population. It is expected that not all of this information will be available during the PA. Also, these criteria are not all-inclusive; list any other criteria you use to hypothesize resident populations. This chart will record your professional judgment in evaluating this factor.

Use the resident population section to guide you through evaluation of some site and source conditions that will help identify targets likely to be exposed to hazardous substances. You may use this section of the chart more than once, depending on the number of nearby people you feel may be considered part of a resident population. Record the responses for the resident population target that you feel has the highest probability of being exposed to hazardous substances.

Check the boxes to indicate a "yes", "no", or "unknown" answer to each question.

SOIL EXPOSURE PATHWAY				
SUSPECTED CONTAMINATION	***RESIDENT POPULATION***			
	Yes	No	Unknown	
Surficial contamination is assumed.	☐	☒	☐	Are there residences, schools, or day care facilities on or within 200 feet of areas of suspected contamination?
	☐	☒	☐	Are residences, schools, or day care facilities located on adjacent land previously owned or leased by the site owner/operator?
	☐	☒	☐	Is there an overland migration route that might spread hazardous substances near residences, schools, or day care facilities?
	☐	☒	☐	Are there any reports of adverse health effects from onsite or adjacent residents or students, exclusive of apparent drinking water or air contamination problems?
	☐	☒	☐	Does any offsite property warrant sampling?
	☐	☐		Other criteria? _____
	☒	☐		**RESIDENT POPULATION IDENTIFIED?**

Summarize the rationale for resident population (attach an additional page if necessary):

1980 & 1990 U.S. CENSUS DATA

SITE RECONNAISSANCE OF 5-22-91

INTERVIEW WITH FACILITY REPRESENTATIVES

U.S.G.S. TOPOGRAPHIC QUADRANGLE MAPS

Site Name: CARUS CHEMICAL Co
Date: 6-25-91

SOIL EXPOSURE PATHWAY SCORESHEET

Pathway Characteristics	
Do any people live on or within 200 ft of areas of suspected contamination?	Yes ___ No X
Do any people attend school or day care on or within 200 ft of areas of suspected contamination?	Yes ___ No X
Is the facility active? Yes X No ___ If yes, estimate the number of workers: 105	

LIKELIHOOD OF EXPOSURE		A Suspected Contamination	B No Suspected Contamination	Reference
1. SUSPECTED CONTAMINATION: Surficial contamination is assumed. A score of 550 is assigned.	LE =	(550) 550		19

RESIDENT POPULATION THREAT TARGETS

2. RESIDENT POPULATION: Determine the number of people occupying residences or attending school or day care on or within 200 feet of areas of suspected contamination (see Soil Exposure Pathway Criteria List, page 18). ___ people x 10 =		0		20
3. RESIDENT INDIVIDUAL: If you have identified any Resident Population (Factor 2), assign a score of 50; otherwise, assign a score of 0.		(50 or 0) 0		21
4. WORKERS: Assign a score from the following table based on the total number of workers at the facility and nearby facilities with suspected contamination:		(15, 10, 5, or 0) 10		22
5. TERRESTRIAL SENSITIVE ENVIRONMENTS: Assign a value from PA Table 7 for each terrestrial sensitive environment that is located on an area of suspected contamination:		0		23
6. RESOURCES: A score of 5 is assigned.		(5) 5		
	T =	15		

Number of Workers	Score
0	0
1 to 100	5
101 to 1,000	10
>1,000	15

Terrestrial Sensitive Environment Type	Value
NONE	

Sum =

WASTE CHARACTERISTICS

7. Assign the waste characteristics score calculated on page 4.	WC =	(100, 32, or 18) 100

RESIDENT POPULATION THREAT SCORE: $\frac{LE \times T \times WC}{82,500}$ = (maximum of 100) 10

NEARBY POPULATION THREAT SCORE: *Assign a score of 2* = 2

SOIL EXPOSURE PATHWAY SCORE: Resident Population Threat + Nearby Population Threat = (maximum of 100) 12

Site Name: CARUS CHEMICAL
Date: 6-25-91

PA TABLE 7: SOIL EXPOSURE PATHWAY
TERRESTRIAL SENSITIVE ENVIRONMENT VALUES

Terrestrial Sensitive Environment	*Assigned Valu*
Terrestrial critical habitat for Federally designated endangered or threatened species National Park Designated Federal Wilderness Area National Monument	100
Terrestrial habitat known to be used by Federally designated or proposed threatened or endangered species National Preserve (terrestrial) National or State terrestrial Wildlife Refuge Federal land designated for protection of natural ecosystems Administratively proposed Federal Wilderness Area Terrestrial areas utilized by large or dense aggregations of animals (vertebrate species) for breeding	75
Terrestrial habitat used by State designated endangered or threatened species Terrestrial habitat used by species under review for Federally designated endangered or threatened status	50
State lands designated for wildlife or game management State designated Natural Areas Particular areas, relatively small in size, important to maintenance of unique biotic communities	25

AIR PATHWAY CRITERIA LIST

Site Name: CARUS CHEMICAL CO
Date: 6-25-91

This chart provides guidelines to assist you in hypothesizing the presence of a suspected release. It is expected that not all of this information will be available during the PA. Also, these criteria are not all-inclusive; list any other criteria you use to hypothesize a suspected release. This chart will record your professional judgment in evaluating this factor.

The "Suspected Release" section of the chart guides you through evaluation of some conditions to help hypothesize whether a release from the site is likely. For the Air Pathway, if a release is suspected, "Primary Targets" are any residents, workers, students, or sensitive environments within ¼ mile of the site.

Check the boxes to indicate a "yes", "no", or "unknown" answer to each question. If you check the "Suspected Release" box as "yes", make sure that you assign a Likelihood of Release value of 550 for the pathway.

AIR PATHWAY				
SUSPECTED RELEASE				***PRIMARY TARGETS***
Yes	No	Unknown		
☐	☒	☐	Have odors been reported?	*If you suspect a release to air, evaluate all populations and sensitive environments within ¼ mile (including those onsite) as Primary Targets.*
☐	☒	☐	Has a release of hazardous substances to the air been directly observed?	
☐	☒	☐	Are there any reports of adverse health effects (e.g., headaches, nausea, dizziness) potentially resulting from migration of hazardous substances through the air?	
☐	☒	☐	Is there any circumstantial evidence of an air release?	
☐	☒		Other criteria? _____	
☐	☒		**SUSPECTED RELEASE?**	

Summarize the rationale for suspected release (attach an additional page if necessary):

NO RELEASE SUSPECTED

Site Name: CARUS CHEMICAL CO.
Date: 6-25-91

AIR PATHWAY SCORESHEET

Pathway Characteristics	
Do you suspect a release (see Air Pathway Criteria List, page 21)?	Yes ___ No X
Distance to the nearest individual:	0 ft

	A Suspected Release	B No Suspected Release	Reference
LIKELIHOOD OF RELEASE			
1. SUSPECTED RELEASE: If you suspect a release to air (see page 21), assign a score of 550, and use only column A for this pathway.	[illegible]	[illegible]	24
2. NO SUSPECTED RELEASE: If you do not suspect a release to air, assign a score of 500, and use only column B for this pathway.	[illegible]	500	25
LR =		500	
TARGETS			
3. PRIMARY TARGET POPULATION: Determine the number of people subject to exposure from a release of hazardous substances through the air (see Air Pathway Criteria List, page 21). ____ people x 10 =		[illegible]	26
4. SECONDARY TARGET POPULATION: Determine the number of people within the 4-mile target distance limit, and assign the total population score from PA Table 8.		79	27
5. NEAREST INDIVIDUAL: If you have identified any Primary Targets for the air pathway, assign a score of 50; otherwise, assign the highest Nearest Individual score from PA Table 8.	[illegible]	20	28
6. PRIMARY SENSITIVE ENVIRONMENTS: Sum the sensitive environment values (PA Table 5) and wetland acreage values (PA Table 9) for environments subject to exposure from air hazardous substances (see Air Pathway Criteria List, page 21).		[illegible]	29
Sum =			
7. SECONDARY SENSITIVE ENVIRONMENTS: Use PA Table 10 to determine the score for secondary sensitive environments.		2.64	30
8. RESOURCES: A score of 5 is assigned.	5	5	
T =		106.64	
WASTE CHARACTERISTICS			
9. A. If you have identified any Primary Targets for the air pathway, assign the waste characteristics score calculated on page 4, or a score of 32, whichever is GREATER; do not evaluate part B of this factor.	[illegible]	[illegible]	
B. If you have NOT identified any Primary Targets for the air pathway, assign the waste characteristics score calculated on page 4.	[illegible]	100	
WC =		100	

AIR PATHWAY SCORE: $\frac{LR \times T \times WC}{82.500}$ = [illegible] 65 64.63

Site Name: CARUS CHEMICAL CO.
Date: 6-25-91

PA TABLE 8: VALUES FOR SECONDARY AIR TARGET POPULATIONS

Distance from Site	Population	Nearest Individual (choose highest)	Population Within Distance Category: 1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,001 to 3,000,000	Population Value
Onsite	105	(20)	1	2	5	(16)	52	163	521	1,633	5,214	16,325	52,136	163,246	16
>0 to ¼ mile	1035	20	1	1	1	4	13	(41)	130	408	1,303	4,081	13,034	40,811	41
>¼ to ½ mile	2069	2	0	0	1	1	3	(9)	28	88	282	882	2,815	8,815	9
>½ to 1 mile	6229	1	0	0	0	1	1	3	(8)	26	83	261	834	2,612	8
>1 to 2 miles	6965	0	0	0	0	0	1	1	(3)	8	27	83	266	833	3
>2 to 3 miles	8212	0	0	0	0	0	1	1	(1)	4	12	38	120	376	1
>3 to 4 miles	3099	0	0	0	0	0	0	1	(1)	2	7	23	73	229	1
Nearest Individual =		20											Score =		79

PA TABLE 9: AIR PATHWAY VALUES FOR WETLAND AREA

Wetland Area	Assigned Value
Less than 1 acre	0
1 to 50 acres	25
Greater than 50 to 100 acres	75
Greater than 100 to 150 acres	125
Greater than 150 to 200 acres	175
Greater than 200 to 300 acres	250
Greater than 300 to 400 acres	350
Greater than 400 to 500 acres	450
Greater than 500 acres	500

PA TABLE 10: DISTANCE WEIGHTS AND CALCULATIONS FOR AIR PATHWAY SECONDARY SENSITIVE ENVIRONMENTS

Distance	Distance Weight	Sensitive Environment Type and Value (from PA Table 6 or 9)	Product
Onsite	0.10	x WETLAND 5.5A (25)	2.5
		x	
0-1/4 mi	0.025	x 0	0
		x	
		x	
1/4-1/2mi	0.0054	x WETLAND 8.5A 25	.135
		x	
		x	
		x	
Total Environments Score =			2.635

Site Name: CARUS CHEMICAL C
Date: 6-25-91

SITE SCORE CALCULATION

	S	S^2
GROUND WATER PATHWAY SCORE (S_{gw}):	100	10,000
SURFACE WATER PATHWAY SCORE (S_{sw}):	23	529
SOIL EXPOSURE PATHWAY SCORE (S_{se}):	12	144
AIR PATHWAY SCORE (S_a):	65	4225
SITE SCORE:	$= \sqrt{\frac{S_{gw}^2+S_{sw}^2+S_{se}^2+S_a^2}{4}} =$	61.03

RECOMMENDATION

SUMMARY

	YES	NO
1. Is there a high possibility of a threat to nearby drinking water wells by migration of hazardous substances in ground water?	☐	☐
A. If yes, identify the wells recommended for sampling during the SI.		
B. If yes, how many people are served by these threatened wells? _____		
2. Are any of the following suspected to have been exposed to hazardous substances through surface water migration from the site?		
A. Drinking water intake	☐	☐
B. Fishery	☐	☐
C. Sensitive environment: wetland, critical habitat, others	☐	☐
D. If yes, identify the targets recommended for sampling during the SI.		
3. Do people reside or attend school or day care on or within 200 ft of any area of suspected contamination?	☐	☐
4. Are there public health concerns at this site that are not addressed by PA scoring considerations? If yes, explain:	☐	☐

References

1. IEPA Land files; IEPA Water files.
2. Ref. 1 above.
3. N/A.
4. Conversations with local water operators.
5. Illinois State Water Survey Well Logs; PWS Microfiche files; conversations with local water operators.
6. REF 1 above.
7. REF 1 above.
8. FIA Flood Hazard Boundary Map, March 19, 1976, U.S. Department of Housing and Urban Development, for City of LaSalle, Il.
9. PWS Microfiche files; conversations with local water operators.
10. N/A.
11. REF 9 above.
12. REF 9 above.
13. USGS Topographic Maps; Illinois Water Resources Databook, Vol. 2, 1989.
14. N/A.
15. REF 13 above.
16. REF 13 above; Illinois Department of Conservation.
17. N/A.
18. Illinois Department of Conservation; Wetland Inventory Maps.
19. N/A.
20. 1980 U.S. Census; Site Reconnaissance of 5-22-91; Site

Representative Interview; USGS Topographic Quadrangle Maps.

21. REF 20 above.
22. REF 20 above.
23. Illinois Department of Conservation.
24. N/A.
25. IEPA Air Division files; IEPA Land Division files.
26. N/A.
27. USGS Topographic Quadrangle Maps; 1980 Census Data.
28. REF 27 above.
29. N/A.
30. Wetland Inventory Maps; Illinois Department of Conservation.